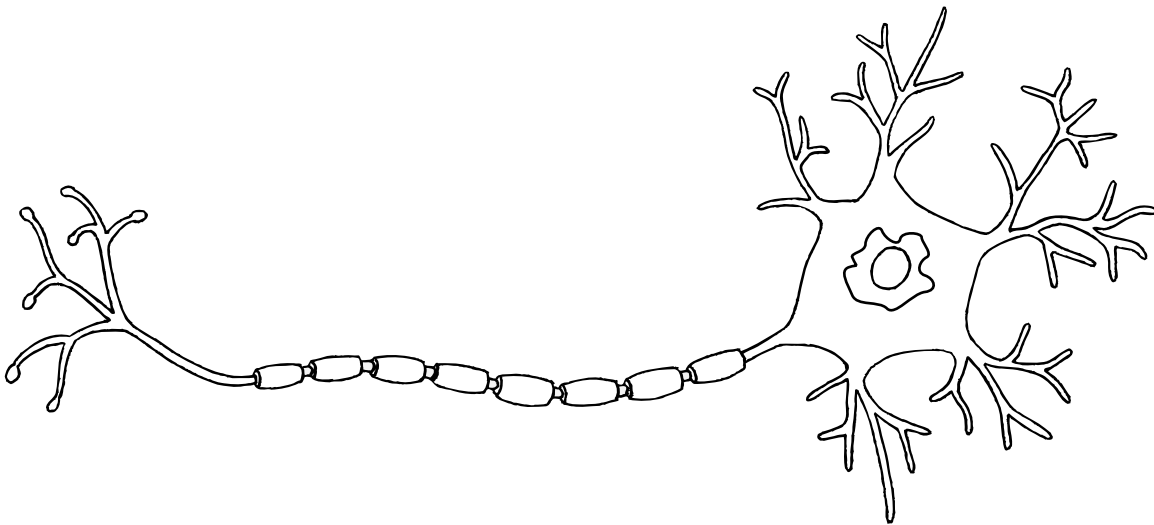


## The Neuron

Neurons are the basic units of the nervous system. They transmit electrical signals called impulses.

*Color the neuron according to the prompts below*

- Color the structures that receive signals from the environment or another neuron red.
- Color the structure that carries an impulse away from the cell body orange.
- Color the cell body blue.



*Answer the questions. Circle the correct answer.*

1. What is the insulating membrane that surrounds some axons called?

synapse      myelin sheath

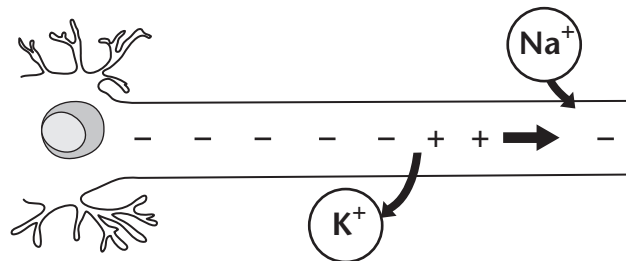
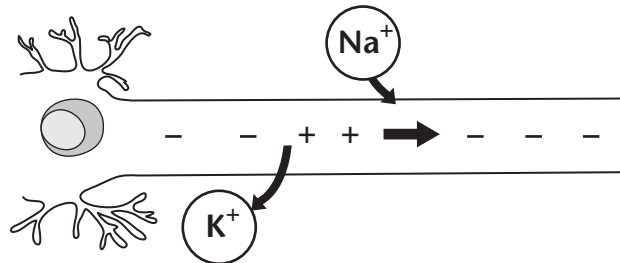
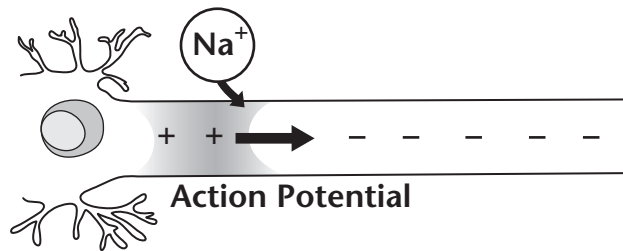
2. What are the structures that carry impulses to the cell body called?

dendrites      axons

## Action Potential

A resting neuron has an overall negative charge. Outside the neuron, the environment has a net positive charge. When a neuron is stimulated, positive ions rush into the cell. The area inside the cell becomes temporarily more positive than the outside. This reversal of charges is called a nerve impulse, or *action potential*. As the action potential passes, positive ions flow out of the cell. This restores the net negative charge inside the cell.

*Color the action potential in the appropriate diagrams red. One has been done for you.*



*Use the diagram to answer the question. Circle the correct answer.*

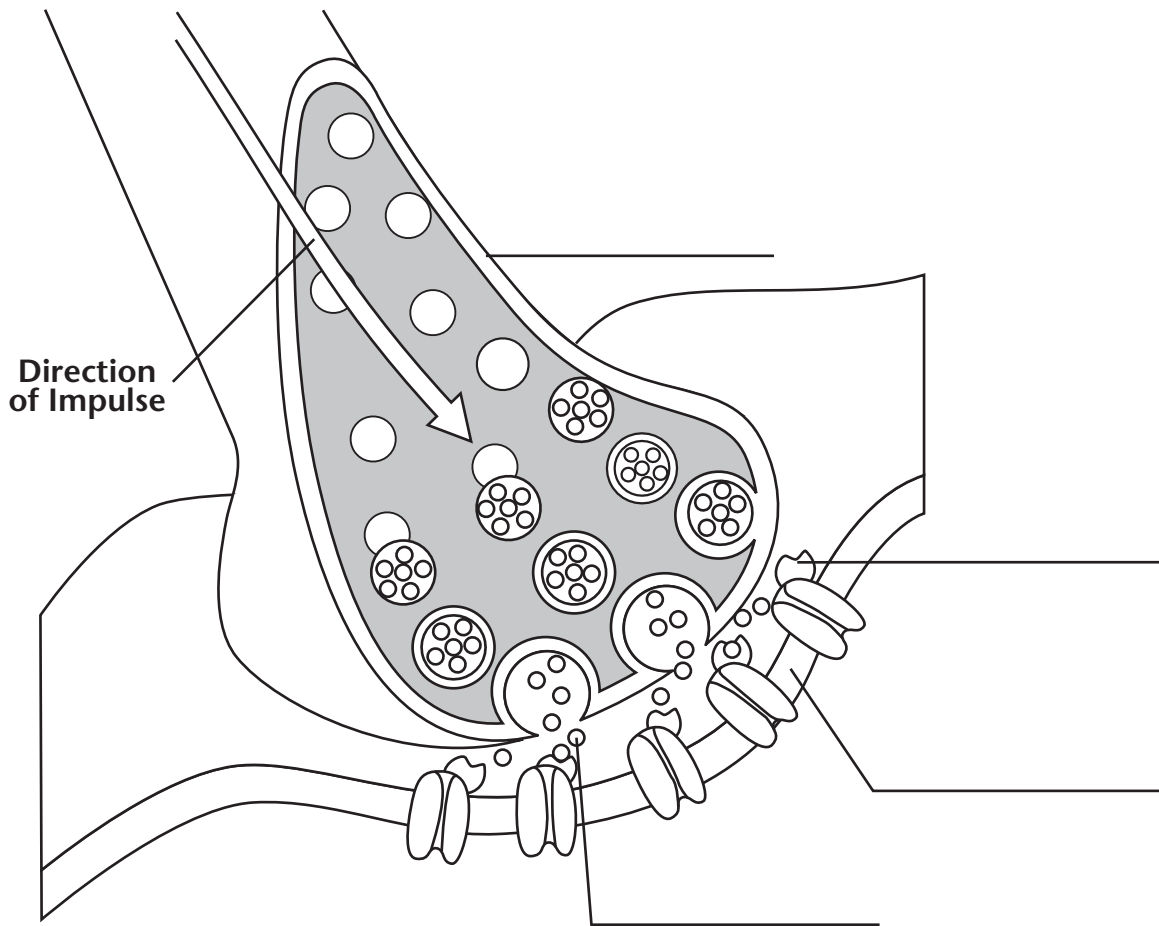
1. In which direction do potassium ions ( $K^+$ ) flow as the action potential passes?

into the cell      out of the cell

## The Synapse

A neuron transfers an impulse to another cell at a synapse. The signals are transferred by neurotransmitters. Neurotransmitters are chemicals released by the neuron that cross the space between the cells and bind to receptors on the neighboring cell.

*Label one neurotransmitter, receptor, and two cell membranes on the diagram. Then, color the neuron transmitting the signal red. Color the cell receiving the signal blue.*



*Use the drawing to answer the question. Circle the correct answer.*

1. The cell receiving the signal is a neuron. What part of this neuron is pictured above?

dendrite      cell body